Reg No.:_____ Name:_____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

**Course Code: CH307**
**Course Name: COMPUTER PROGRAMMING IN C++ (CH)**

Max. Marks: 100 Duration: 3 Hours

## PART A

***Answer any two full questions, each carries 15 marks*** Marks

1 a) Describe the salient features of object-oriented programming. (5)
b) Write a C++ program to print all prime numbers between 1 and 100. (10)

2 a) Differentiate between procedural and object-oriented programming. (5)
b) Write a C++ program to implement the following: (10)
i) Provision for the user to select a shape – hollow cylinder or hollow sphere.
ii) If hollow cylinder is selected, user shall be prompted to input thermal conductivity 'k', Outer radius '$R_o$', Inner radius '$R_i$', and length 'l'.
iii) If hollow sphere is selected, user shall be prompted to input k, $R_o$and $R_i$.
iv) Calculate thermal resistance of the shape selected. Use:

for cylinder, $R_{thermal} = \frac{\ln(R_0/R_i)}{2\pi kl}$

for sphere, $R_{thermal} = \frac{R_o - R_i}{4\pi k(R_o.R_i)}$

3 a) Write a C++ program to find the biggest among three numbers. (5)
b) Illustrate with the help of a single program, any five different operator types used in C++. (10)

## PART B

***Answer any two full questions, each carries 15 marks***

4 a) Define inline function with an example. (5)
b) Explain class definition (class declaration and class function definitions) in C++ with syntax. (5)
c) Write a C++ program to find the number of occurrence of a character in a string. (5)

5 a) Write a program to add two complex numbers by overloading operator '+'. (10)
b) Define friend functions? Give syntax. (5)

6 a) Write a C++ program to input and display user defined elements in an array. (5)
b) Compare and contrast between constructors and destructor. (5)
c) Use schematic representation to differentiate between single, multiple and multilevel inheritance. (5)

## PART C

***Answer any two full questions,each carries 20 marks***

7 a) Write a C++ program to get roll numbers and marks of the students of a class from the user and store these details into a file called 'student.dat'. (10)
b) Explain how class templates and function templates are used in C++. (10)

8 a) Explain the various functions used for manipulation of file pointers. (10)
b) Explain with an example how array of pointers is used to access individual objects. (10)

9 a) Explain with an example how pointers are pointed to the objects of a derived class. (10)
b) Explain Virtual Function with the help of suitable examples. (10)

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